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NASA AUTOMATED ROCKET SAFETY SYSTEM PASSES KEY TEST

NASA has successfully demonstrated a new automated system which may enhance launch safety and reduce costs for access to space.

The autonomous flight safety system detects when a rocket is flying off course and directs itself to end the flight. The new "self-destruct" system, tested on April 5 during a suborbital flight from White Sands Missile Range, N.M., has the potential to dramatically reduce downrange radar, telemetry and command uplink requirements while enhancing reaction time.

"The safety system was able to detect the rocket's position and compare it to the projected flight path," said Barton Bull, technology development manager at NASA's Wallops Flight Facility, Wallops Island, Va. "It was a very successful test of the prototype."

"In an operational system, if the onboard computers had detected that the rocket was flying off course and there was the potential of it flying outside the launch range, the vehicle would self-destruct," he said.

NASA's Kennedy Space Center, Fla., joins Wallops in supporting the project, designed to let errant vehicles use onboard software to end a flight based on self-contained position and attitude sensors. The system will be able to replicate all mission rules available to range safety officers without relying on any commands from the ground.

The test incorporated redundant Global Positioning System sensors and used two on-board computer processors. One was loaded with a nominal trajectory and the other was programmed so that a nominal flight would violate safety rules and prompt a self-destruct.

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The system was not connected to a termination system during the test flight. The safety system functioned and reacted correctly during the entire flight from launch to parachute deployment. The two stage sounding rocket flew to an altitude of 47.5 miles, and the experiment package was safely recovered.

The next goal of the project is to complete the design and demonstrate a system compliant with the strict reliability and redundancy rules required by range safety organizations at NASA and Department of Defense launch ranges. The next test flight of the system is tentatively scheduled for fall.

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